

ABSTRACT

A lithium-ion rechargeable cell is described which contains an electrolyte comprising a pyrazolium cation, an imidazolium cation, or a combination thereof, as well as lithium ion, and at least one non-Lewis acid derived counter-ion. Electrochemical cells containing an anode, a cathode, and the ionic liquid electrolytes preferably have effective charge/discharge capacity and charging efficiency at low temperatures and at high temperatures.